TDT®

Your experts in **DATA COMMUNICATION.**

Initial start-up guide: G3000 series

TDT AG

Siemensstraße 18

84051 Essenbach

Germany

Tel   +49 8703 929-112

Web   www.tdt.de

E-Mail   support@tdt.de

> **Note**
> ➢ The EU declaraction of conformity can be downloaded via *download.tdt.de* while the manual is directly accessible via *https://tdt.router/manual* or *https://192.168.0.50/manual*.

1 ⚠️ Safety instructions

This documentation contains instructions that need to be complied with for the safety of the user and/or to prevent damage to the G3000 series.

As part of ongoing security testing TDT always strives to design its products as secure as possible and attaches great importance to compliance with current safety and quality standards during development and regular firmware updates.

1.1 General safety instructions

- The operation of the router is only permitted with the intended voltage supply.
- Heat should be avoided despite low heat build-up in order to prevent damage to the device.
- The router should not be put into operation near highly flammable or explosive gases/liquids as with all electrical equipment.
- Do not use in wet or splash-endangered areas as this could result in electric shocks and/or short-circuiting
- Fluids entering the chassis are to be avoided.
- Ensure to turn off the voltage supply before opening the housing cover in order to avoid danger to the user and damage to the device.
- There may be sharp edges and tips inside the router, so careful handling is recommended.
- Only use the G3000 router and its attachments in a flawless and undamaged condition.
- Repairs may only be held by technicians authorized by the manufacturer.
- The warranty claim expires due to modifications / repairs carried out by the customer.
- The device has to be immediately shut down and separated from the power supply if malfunctions / damage or the cause of another danger is suspected.

1.2 Safety instructions for devices with cellular equipment

If the router contains a GSM modem and/or WLAN transmitter module, the following must also be considered:

- **IMPORTANT!** Mobile radio routers work with radio signals based on cellular networks. It cannot be guaranteed a connection can be established in all situations. The router can therefore **only be used conditionally for critical communication**.
- Antennas should be placed at a distance of at least one meter away from people.
- The router must not be used in hospitals or in places where medical equipment is installed. Medical equipment usually reacts very sensitively to high-frequency radio waves.
- Cardiac pacemakers and / or hearing aids can be disrupted or destroyed by interferences of mobile radio or WLAN routers. People using such aids should not be near the router when it is in operation and hold the minimum distance of at least 25 centimeters.
- Mobile radio or WLAN routers must not be used on aircrafts. The operation of radio transmission systems is generally prohibited on planes in order to avoid a disturbance of the electronics.
- Mobile radio or WLAN routers receive and transmit high-frequency radiation while they are in operation. It should be noted that interferences may occur when the router is put near electrical devices (e.g. microwaves, televisions, etc.) or other insufficiently shielded equipment.
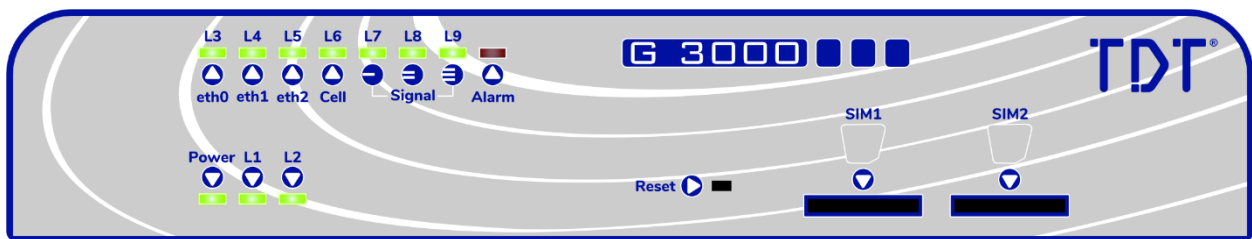- Only insert or replace the SIM card in a voltage-free state.

2 Hardware – Getting started

2.1 Package contents

The following accessories are included with the G3000 router:

- Router
- Power supply (12V, 2A)
- Ethernet-/LAN-cable
- Antenna for mobile radio *)
- Antenna for WiFi **)

2.2 Front side

On the front of the G3000 router are arranged from left to right:

- Status LEDs:

> **Note**
> ➤ The bootup is symbolized by a chase light.

eth0	
off	No link existing on the eth0 ports.
on	The eth0 port has an active link.
flashing	Data transfer via the eth0 port.

eth1	
off	No link existing on the eth1 ports.
on	The eth1 port has an active link.
flashing	Data transfer via the eth1 port.

eth2	
off	No link existing on the eth2 ports.
on	The eth2 port has an active link.
flashing	Data transfer via the eth2 port.

Cellular	
off	If the signal LEDs are off as well the router is not registered on any mobile cell and it has no signal in its own network. If any signal LED is on it is registered in the 2G network (GPRS / EDGE).
blinking	The router is registered in the mobile network and a 3G signal (UMTS / HSPA / +) is present.
on	The current technology is 4G (LTE) and the router is registered in a cell.

Signal *)	blinking	on
off	Not connected to the mobile network, registered, no signal.	
I	Registered on a mobile cell. Signal level between 0% and 17%	Signal level between 17% and 33%
II	Signal level between 33% and 50%	Signal level between 50% and 66%
III	Signal level between 66% and 83%	Signal level between 83% and 100%

☼ `Alarm`-LED to display important / critical events.

Power	
off	Router is not connected to the power supply.
on	Voltage applied.

☼ `Reset` button

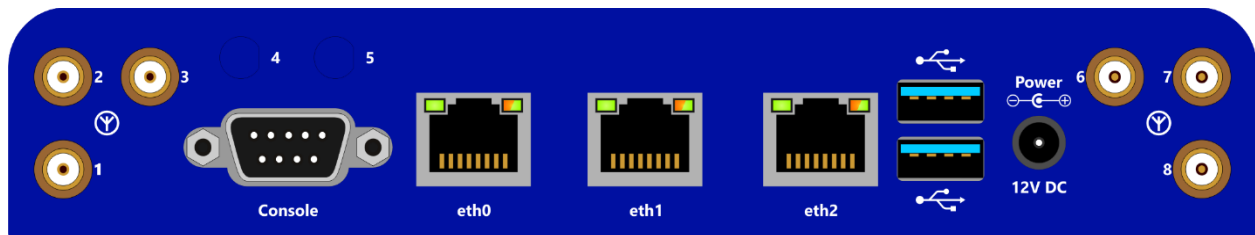| Reset button	
press briefly (<1 sec)	Restarts the router.
press and hold (>5 sec)	Resets the device to its factory defaults.

☼ SIM card slots `SIM1and SIM2` *)

2.3 Rear side

Connection	Description
1 *)	Connection for the primary antenna / first antenna cable. This connection is mandatory.
2 *)	SMA socket for the connection of the second antenna / second antenna cable.
3 *)	*Optional connection for an antenna determining the position via a global navigation satellite system (GPS/GLONASS).*
Console	9-pole RS-232 configuration port (speed: 115200 (8N1))
eth0 - eth2	10/100/1000BaseT interface RJ45/RJ48s. Features an automatic speed detection as well as the cable type (1:1 or crossed).
USB (2x)	Deactivated by default. The USB 3.0 ports are intended for future applications (e.g. for external logging, UPS management).
Power	Wide range voltage input 9V..30V DC with coaxial power connector.
6 **)	RP-SMA socket for the connection of the WLAN antenna to channel 0.
7 **)	RP-SMA socket for the connection of the WLAN antenna to channel 1.
8 **)	RP-SMA socket for the connection of the WLAN antenna to channel 2.

2.4 Initiation

> **Warning**
> ➢ To prevent damage to the device or the SIM card, said card is only to be inserted or removed in a voltage-free state!

> **Caution**
> ➢ To prevent damage caused by condensation the router must be brought to room temperature before it is supplied with voltage.
> ➢ Therefore, the router should be taken out of the packaging about one hour before initiation.
> ➢ In order to avoid damage to the device, handle with care.

1. Carefully open the transport packaging.
2. Take out the router by folding the cardboard flaps upwards and pulling out the device under the foil.
3. Connect the necessary cables to the router, for example:
    a. Ethernet cable to the **_eth1_**-Port.
    b. Ethernet cable to the **eth0**-Port.
    c. Antenna cables to the Cellular MAIN and MIMO [*)].
4. Only now connect the router to the power supply.
5. As soon as the initiation process is completed the router can be reached via IP.

> **Caution**
> ➢ It can take up to two minutes for the router to be reachable when booting the first time.

2.5 Login details and IP addresses

The G3000 series devices have the IP address **192.168.0.50** assigned to **eth1** by "factory default", additionally the user is **root**. The password is individually generated for each router during production process and printed on the nameplate.

Besides, IP addresses are also provided via DHCP in the standard configuration. Here the range is defined from **192.168.0.100** to **192.168.0.250**.

Parameter	Value
IP address	**192.168.0.50**
DNS name	**tdt.router**
Username	**root**
Password	Individually generated for each router (see nameplate).

> **Caution**
> ➢ In the delivery state, the G3000 has an individual password which can be found on the nameplate.
> ➢ Anyway, it is highly recommended to assign an individual password before starting a configuration!
> ➢ Before mounting the device, write down the password in order to retain access after a factory reset.

2.6   Manual

The manual included is suitable for the characteristics and firmware version on the router.

It can be accessed both in the menu of the web interface, under **Help > Handbook**, as well as without login:

> **Note**
> ➢ The manual, which can be accessed without login, can be saved locally via the `Save page` function of the browser.
> All necessary information (for example pictures) is contained in a document.

2.7 How to connect to the router?

In order to be able to configure the router on the one hand the web interface can be utilized for an easy configuration in the web browser. On the other hand, you have the option to connect yourself directly to the router via SSH or serial.

> **Caution**
> ➢ When trying to access the router via `eth1` the PC must be located in the same network as the router.

> **Note**
> ➢ On `eth1` IPs are provided via DHCP by default configuration.
> ➢ If the IP address is not automatically obtained, an IP address from the range *192.168.0.0/24* is required. For example, *192.168.0.1* with subnet mask *255.255.255.0*.

2.7.1 Access via the web interface

To get to the web interface of the G3000 via a browser, simply enter the IP address of the router in the address bar. In the delivery state the IP address of lan is set to *192.168.0.50*. The router is also further accessible via the name *tdt.router*.

Since the web interface can only be accessed via SSL, *https://* must be prepended before the IP address.

Example:
https://tdt.router or *https://192.168.0.50*

In the now appearing login window you authenticate yourself with the username *root* and the corresponding password*.*

> **Caution**
> ➢ It is highly recommended to assign a password before starting a configuration!

2.7.2 Command line

The router also has a command line at its disposal that can be used to easily run analyses.

The shell can be accessed via IP or serial via the RS-232 configuration port on the back of the G3000. In both cases access can be realized, for example, by using the open source software PuTTY. Recommended PuTTY configurations can be found in the manual.

2.7.2.1 Secure shell (SSH) via IP

For SSH access you open PuTTY, enter the IP of the G3000 at the `Host Name (or IP address)` and click the `Open` -button. In the newly opened window, log on to the system with the username *root* and the corresponding password.

In a Linux environment access can be gained directly via the terminal by using the command *ssh root@192.168.0.50*.

2.7.2.2 Serial via RS-232 configuration port

In order to access the G3000 via serial, a terminal program is required. The connection can also be established via PuTTY.

First connect the router with a null modem cable via the Console port to the computer.

The following chart shows the values that must be configured in the terminal program in addition to the COM port for the serial interface.

Parameter	Value
Speed (baud)	115200
Data bits	8
Stop bits	1
Parity	None
Flow control	None

To get the login prompt, press the Enter key ⏎ once. Afterwards you can log on to the system with the user **root** and the corresponding password.

2.8 Internet connection

The G3000 offers various ways to establish an Internet connection. First of all, there is the `eth0` port to implement various gateway connections or a connection via an external modem in addition to mobile radio with MultiSIM Support[*].

Further information on this can be found in the manual.

> **Note**
> ➢ In the delivery state, all WAN interfaces are located in the firewall zone **wan**.
> External access to the router is not permitted by default.
> ➢ The router is provided with a pre-configured backup system in the default configuration.
> Here the order - from the highest priority to the lowest - is `eth0` (Ethernet gateway connection) before **wwan**[*] (mobile).

> **Caution**
> ➢ The interface **wwan**[*] (mobile radio) is not initialized by default.
> ➢ ICMP packets are actively sent by the router when checking the individual connection paths.

3 Software

3.1 WRITTEN OFFER TDT AG

The software included in this product contains copyrighted software that is licensed under the GPL or the LGPL.

A copy of these licenses is included in the documentation.

Anyone may obtain the complete corresponding source code from us for a period of three years after our last shipment of this product by sending a request (including the name of the covered binary) via mail or e-mail.

We may charge a nominal fee to cover the cost of the media and distribution.

TDT AG
Siemensstraße 18
84051 Essenbach
Germany
info@tdt.de

3.2 Open Source Software Licenses

This product includes software developed by the Apache Group for use in the Apache HTTP server project (http://www.apache.org/).

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/).

4 EU declaration of conformity

Hereby, TDT declares that the radio equipment type G3000-L, G3000-W or G3000-LW is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: download.tdt.de.

C E

Hereby, TDT declares that the telecommunication terminal equipment type G3000 is in compliance with Directive 2014/35/EU.

The full text of the EU declaration of conformity is available at the following internet address: download.tdt.de.